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On Lookout for Clues That Gingrich is Keen for Science

Sightings remained skimpy last week in the post-election lookout for clues to the fate of science and technology in the anti-spending competition underway between the Republican Congress and the Democratic White House.

Clearly evident among the science observers was an inclination toward hopeful signs, however slight. For example, exploring a hunch, a staff member at the American Association for the Advancement of Science discovered that House Speaker Newt Gingrich has been a dues-paying AAAS member since 1984. He therefore might be a reader of the journal that comes with membership, *Science*, which regularly chronicles developments in science and the fiscal deprivations and bureaucratic mistreatments of the research community.

The fact of membership and the possibility of readership has raised attention, if not spirits and hopes. "It's interesting," a AAAS official told SGR, though he sensibly declined to go beyond that observation.

A news article in the *Wall Street Journal* on January 23

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showed no such timidity in stretching for pro-science inferences. It reported that Speaker Gingrich had called upon the Smithsonian Institution to provide his office with a five-foot-long replica of the skull of a Tyrannosaurus Rex, "the fiercest meat-eating dinosaur to roam prehistoric earth."

This exercise in interior decoration, the newspaper concluded, shows Gingrich's "personal excitement for things scientific, and that may bode well for science, even with GOP budget cutting." The article noted that House Science Committee Chairman Robert Walker (R-Pa.), a Gingrich buddy and self-proclaimed science enthusiast, has described himself and the Speaker as "technonuts." Not noted was that on an earlier occasion, the Science Chairman had also applied the description to Bill Clinton.

Walker is also Vice Chairman of the Budget Committee, and thus is doubly well-situated to champion federal support of science. Nonetheless, budget cutting, rather than science, is the battlecry of the new Republican majority. Covering its flanks, the *Journal* pointed out that the Gingrich-Walker enthusiasm for science "doesn't mean some existing science programs won't be whacked in the Republicans' budget-cutting binge."

Somewhat more substantial hints and signs of budgets and policies to come could be detected here and there, in Congres-

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The "Health" of the Sciences? Report Says It Defies Measure

Do reliable techniques exist to assess the "health" of scientific disciplines?

Proceeding as though the answer is a sure yes, the science establishment regularly conducts studies that lead to reports presenting vital statistics and confident conclusions on the conditions, needs, and opportunities of fields of research.

But the value of these findings is doubtful, according to a brief report based on a quietly conducted study at the National Academy of Sciences. After looking at three fields—mathematics, astronomy, and atomic, molecular, and optical science—the study committee concluded that " 'health' assessments are harder to make than we initially thought," and a "large chasm exists between asking for performance measures or other indicators of the status of a discipline, and

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In Brief

The American Association for the Advancement of Science is in an advanced stage of negotiations for a new editor for its prime property, the weekly *Science*. The leading candidate, Floyd Bloom, a neuroscientist at the Scripps Research Institute, La Jolla, California, insists on a part-time appointment, like the retiring Daniel Koshland, editor for the past decade. The AAAS is agreeable to that condition. News of Bloom's apparently imminent appointment first appeared in *Science's* leading competitor, the British weekly *Nature*, on January 19.

Swift selection of a successor for Samuel Broder, departing Director of the National Cancer Institute, was pledged to NCI's senior staff last month by NIH Director Harold Varmus. With NCI's top ranks riddled with old vacancies and others on the way, Varmus said he hopes the post will be filled by April. Subordinate appointments, he added, would await the arrival of a Director. Heading the search committee is Paul A. Marks, chief of Memorial Sloan-Kettering Cancer Center, New York.

Truth in electioneering has come to the National Academy of Engineering, where a rare horse race is in progress for the presidency. The candidate of the NAE nominating committee is Cornelius Pings, President of the Association of American Universities. Opposing him is a petition candidate, Harold Liebowitz, Dean emeritus of Engineering at George Washington University. In 1991, when Liebowitz ran as a petition candidate and got 40 percent of the vote, the NAE information apparatus ignored his candidacy. This time, the NAE is playing it straight: in separate press releases last month, the candidacies of Pings and Liebowitz were announced, though neither press release mentioned the other candidate.

. . . Walker Complains that Clinton Ignored Science

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sional committee assignments and public statements. In a novel approach to shaping the budget, the House Budget Committee has set up seven working groups, with members drawn from its own ranks and the authorization and appropriations committees. Among them is the Natural Resources/Science working group, which harbors a Science Research subgroup, of which Walker is a member.

The inter-committee makeup of the working groups could represent a step forward in the orchestration of Congressional processes, which in the past have proceeded on separate tracks, with the budget designers, the law writers, and the money appropriators paying minimal attention to each other. Nonetheless, the committees from which the working group members are drawn still retain their sovereignty. Until the returns are in, there's no way of knowing how this innovation will work in practice.

The immediate task of the full Budget Committee—promised for completion in the first 100 days of Republican Congressional rule—is to recommend hundreds of billions of dollars in reductions in federal spending, spaced over five years. The goal was easy to proclaim during the election campaign. But now that cutting time is approaching, the likely victims are mobilizing in self-defense. Spending cuts are encountering resistance and second thoughts, as was evident in recent hearings on the federal Arts and Humanities endowments and public broadcasting.

The confiscation of money appropriated for the current fiscal year is under consideration by the appropriations committees, but how much and from which agencies remains to be determined. The first tangible evidence of the Administration's current intentions for science and technology will come February 6, with delivery to Congress of the President's proposed budget for fiscal 1996, which begins October 1.

As has been the case with Presidential budgets over the past decade at least, the Clinton budget will be declared dead on arrival on Capitol Hill, to be supplanted by the preferences of the new Republican majorities.

But even after the House and Senate Budget Committees set the broad framework for appropriations, decisions on the specifics will still be many months and appropriations subcommittee hearings in the distant future. If the normal Congressional timetables are followed, the final verdicts won't be in until mid-summer, or even later.

In the research community, great, and perhaps excessive, hopes are being invested in Science Committee Chairman Walker, who, following in the steps of his immediate predecessor in the chair, Rep. George Brown (D-Calif.), has opted for the role of guardian and statesman of science. His first hearing, January 6, two days after Congress convened, was on the long-term future of science, with emphasis on basic research [SGR, January 15].

The morning after President Clinton's State of the Union address last week, Walker faxed a press release to the Washington science-writing corps and others deploring the absence of any reference to science or technology in the marathon speech. Under the heading "WALKER DISTURBED AT PRESIDENT'S SNUB OF SCIENCE IN THE STATE OF THE UNION MESSAGE," it quoted the Chairman as saying: "I am deeply disappointed that a speech which was intended, in part, to address the future needs of our nation, did not mention our science mission or technological goals.

"Such an omission," Walked continued, "could be seen as an indication that science policy may be a diminished priority within the Clinton Administration. I sincerely hope that by choosing not to acknowledge the importance of science to the US economy, the President is not signaling that science will take a back bench in his upcoming budget message."

The episode evoked hope in the capital's science watchers, since it suggested that the competition between Republicans and Democrats in the science sector of the budget would be over who could spend more rather than less.

But given the behind-the-scenes preparations that go into the most important Presidential address of the year, the absence of science in the State of the Union message was an awesome blow to the egos of the Clinton science leadership.

Supportive words in that speech are cherished weapons in bureaucratic relations, for they imply that the Chief Executive is keen about a particular topic. In helping prepare for the State of the Union address, the White House Office of Science and Technology Policy calls upon the research agencies to prepare memos describing their successes. These are distilled at OSTP for delivery to the speech writers in the White House inner sanctum. Hopes were high that some inspirational words about science and technology would survive the winnowing process.

Since a need for brevity could not explain the omission in the longest State of the Union address in history, what could it be? With a reference to Walker's critical statement, the question was put last week to Presidential Science and Technology Advisor John Gibbons at a public meeting in Washington on State-Federal Science and Technology relations (see P. 5). The Presidential S&T Advisor was up to the

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. . . Report Did Not Receive a "Big Dissemination"

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getting ones that are reliable and usable."

The report, *Quantitative Assessments of the Physical and Mathematical Sciences: A Summary of Lessons Learned*, was printed last November, but though not a secret, and available upon request, it was not publicly announced, unlike most new Academy publications, which are accorded at least a press release. SGR first heard about it last week, in a news sheet, *Washington Highlights*, published by the Washington office of the Dana Alliance for Brain Initiatives, though we since have heard that brief references appeared earlier and elsewhere in other less-visible reaches of the information food chain. An Academy staff member told SGR that the report has not been noted by any of the major scientific publications.

***Quantitative Assessments of the Physical and Mathematical Sciences: A Summary of Lessons Learned* (13 pp., no charge); order from: Commission on Physical Sciences, Mathematics, and Applications, National Academy of Sciences, NAS 285, attn. Julie Esanu, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3061; fax 202/334-2154.**

Asked about the hush, the staff member said that the study "was internally funded," meaning the Academy financed it with its own money, rather than the federal government's, and "there was no big dissemination." Why is a separate and unstated matter, but it may be assumed that the report didn't go down too well at the Academy, which is a leading source of reports on the health of science.

The conclusions of the stealth report don't harmonize with a major Academy report published in 1993, *Science, Technology, and the Federal Government: National Goals for a New Era* [SGR, July 1, 1993: "US Science Can Have It All, Academy Report Asserts"]. Issued with much fanfare, including a press conference led by Frank Press, then President of the Academy, the 1993 report said the scientific community should assess the state of the various disciplines, and the federal government should then provide money to assure a US lead in all important fields and at least parity in the others. Produced by the Academy's Committee on Science, Engineering, and Public Policy (COSEPUP), Chaired by Phillip A. Griffiths, Director of the Institute for Advanced Study, Princeton, the 1993 report has been praised by the White House Office of Science and Technology Policy as an important policy guide.

The new Academy study, which began about the time the Griffiths report was issued, was headed by Richard N. Zare, Professor of Chemistry at Stanford University. Within the Academy complex, he chairs the Commission on Physical Sciences, Mathematics, and Applications, which is described in the NAS annual directory as "broadly concerned with ensuring the health and progress" of the sciences in its jurisdiction. The Commission is the source of various reports on the health of scientific disciplines, including *The Decade of Discovery in Astronomy and Astrophysics* (1991) and *Atomic, Molecular, and Optical Science: An Investment in the Future* (1994). COSEPUP, on the other hand, is concerned with broad issues of policy, particularly in scientific relations with the federal government.

The purpose of the study, Zare writes in a preface, was to explore means for "the setting of priorities across fields," for which, he said, "the scientific community has not found a satisfactory method." Nonetheless, he pointed out, science faces "a period of increased introspection, especially with respect to evaluating the effectiveness of federal investments in research and development." Zare referred specifically to a 1991 report from the Congressional Office of Technology Assessment, *Federally Funded Research: Decisions for a Decade*, and the Government Performance and Results Act of 1993. To be phased in over several years, the Act requires federal agencies to set goals and measure progress toward them. As a result, he pointed out, science is under pressure to measure its own health and value to society.

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task of brushing off the omission as irrelevant.

The President's support for science and technology, Gibbons smoothly explained, "was embedded throughout the speech," even if the words weren't stated. "So I was not at all disappointed," Gibbons said. He went on to assert that he was actually cheered by Walker's expression of concern, noting that "here we have a person now chairing the Science Committee who is passionately concerned about science. I therefore note with a good deal of optimism [that] we can find a resonance with the new Congress in this commitment to science and technology as the engine not only for economic growth and the creation of jobs, but also for the protection of the environment and leaving a heritage for our children."

Gibbons further embellished his claimed lack of disappointment with the President's address, stating that "the President, implicitly and by his earlier actions, incorporates science and technology as a high priority in his agenda. And when the '96 budget comes out, I think you will find evidence of this."

What it all comes down to at this point is that no changes have occurred so far in federal policies, practices, or financial support for science, though many are widely expected. Science draws its money from the discretionary, therefore the most politically accessible, part of the federal budget. The Republican majority in the House has taken a blood oath to cut federal spending and reduce taxes. And anti-spending fervor is not far behind in the Senate, where Majority Leader Bob Dole opened the session last month with a vow to cut everything "from Amtrak to zoological studies."—DSG

. . . Criteria for Examining the "Health" of a Discipline

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In seeking to accomplish this, Zare explained, the NAS Commission "judged that what seemed potentially promising was to assess the capacity of a field to retain its strength, adapt to new opportunities, connect with other fields, and the like—a set of criteria labeled as the 'health' of a field or subfield.

"The hope was," Zare continued, "that if a common criteria for assessment could be discovered and validated, then a comparison among different fields would guide the scientific community as well as the patrons of that community in setting priorities."

Starting with a workshop in 1993, the availability and quality of data for "health" studies were examined by three panels—Mathematics, chaired by Shmuel Winograd, of the IBM T.J. Watson Research Center; Astronomy, chaired by Arthur Code, of the University of Wisconsin, and Atomic, Molecular, and Optical Science, chaired by F. Barrymore Dunning, of Rice University.

In conducting the study, the report states, the panels "identified five broad areas of potential metrics that could be indicative of the health or status of any given discipline over time." Listed were characteristics that may invite quibbling, but they more or less add up to commonly accepted criteria of "health" in science.

Demographics—defined as "success of a field in attracting high-quality students and professionals, including women, minorities, and other underrepresented groups."

Support—the capability to attract funding for graduate programs, research, and equipment and facilties "consistent with the requirements established by the community."

Productivity—quantitative output in terms of knowledge and trained professionals, plus "the effectiveness of a field in setting priorities and optimizing the use of resources."

Adaptability—the ability "to adjust to changes in scientific opportunities, levels of support, and national needs."

Quality—production of knowledge, professionals, "and the impact on world science and society, as well as the ability of a field to increase the quality of scientists, teachers, and students in higher education."

After the statement of criteria, the bulk of the report is mainly a drumbeat of doubts about the availability, quality, and meaning of relevant data for addressing the "health" issue.

"Credible, statistically derived indicators" can be useful for assessing some aspects of a discipline's condition, the report states, but it adds: "Nevertheless, because of the amorphous and rapidly changing nature of any given discipline, and because of the numerous difficulties in obtaining and using putatively relevant data, the Commission has concluded that a significantly increased or systematic use of quantitative measures is unlikely to significantly enhance either the credibility or usefulness of its assessments of the health or status of disciplines."

Metrics vs. "Wise Judgment"

From the preface to Quantitative Assessments of the Physical and Mathematical Sciences: A Summary of Lessons Learned, *by Stanford University Professor of Chemistry Richard N. Zare, Chairman of the National Academy of Sciences Commission on Physical Science, Mathematics, and Applications.*

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It is seductive to imagine that a set of metrics exist that, when tracked over time, will enable predicting with confidence the future prospects of a scientific field or subfield. Whereas some indicators may be useful for judging the normal pace of progress in a field as it follows its established paradigm, no evidence could be found that suggests that such statistical measures have long-range predictive powers.

How can we know whether some supposedly dull field in stasis or even in decline is on the verge of a remarkable rebirth that will result from an unexpected experimental discovery or from some new and vital idea coming from the work of just one individual?

We must not let a cycle be created in which the need for accountability leads to the use of measurement standards, which leads to polishing existing paradigms, which leads to further demands for accountability, and so on, with the effect that this cycle drives out investment in paradigm shifts. Put another way, we must avoid "looking for the lost key where the light is brightest": we must avoid allowing what can be measured to become what matters, rather than seeking to measure what matters—which frequently are attributes that cannot be quantified. A means must be found to judge when an incremental investment in a field is likely to yield only a minimal return in polishing the edges of an exisiting mode of research and when it will lead to groundbreaking advances.... I believe the study substantiates what many already know intuitively. A large chasm exists between asking for performance measures or other indicators of the status of a discipline, and getting ones that are reliable and usable. Moreover, often unanticipated difficulties arise concerning the availability of data, the stability over time of ostensibly the same data bases, efforts to compare what seem to be the same data, albeit collected by different groups or agencies, and efforts to interpret these data. In some ways this experiment may be regarded as reporting negative results. In other ways, however, the Commission hopes that this report will be regarded as positive in that it indicates that a premium should be placed on wise judgment by informed individuals. The Commission believes that the findings should be reported and discussed as both a warning and a guidepost for future efforts to judge the effectiveness of public investments in science.

Federal-State R&D Ties Hailed as the Coming Wave

The major event on the Washington science-policy front last week was a big, cheerful gathering in a downtown hotel ballroom, at which a new era in federal-state R&D relations was proclaimed and warmly welcomed. Specifics, however, were short concerning what the abundant verbiage would mean in practical terms. A strong possibility is very little, apart from more meetings and slick reports.

Under the title of the State-Federal Science and Technology Symposium, the gathering drew an unexpectedly large audience of some 250 S&T *apparatchiks*, many from the state and local organizations that have sprung up nationwide in the eager pursuit of job creation through spending on science and technology.

The sponsors were the American Society of Mechanical Engineers and, still defying the grave, the Carnegie Commission on Science, Technology, and Government, founded in 1988 with a loudly proclaimed five-year life span, after which, in a rare feat of anti-bureaucratic non-perpetuation, it was supposed to dissolve permanently. Nonetheless, there it was, co-sponsoring the state-federal shindig, among various other activities, including a $400,000 two-year grant to the American Association for the Advancement of Science to enlighten Congress on science and technology issues.

In more affluent times, the White House would customarily sweeten up such proceedings with the announcement of plans to spend a notable new sum on a relevant activity. The purse, however, is thin. And so, after lauding the assemblage for wisdom and creativity, the senior representative of the Clinton Administration, Presidential Science and Technology Advisor John Gibbons, opened the envelope, and did the best he could in today's difficult circumstances.

"I am here to announce," he declared, "immediate steps to create a new role for the states in the national S&T system."

As the crowd leaned forward in hushed anticipation, Gibbons went on: "We are establishing a State-Federal Science and Technology Task Force as a joint effort with the National Governors' Association to consider at the highest levels how states can be more broadly included in the national S&T system."

"The Task Force," he continued, "should not be bound by any past or current federal S&T practices. If there is a more efficient mechanism for achieving national S&T objectives through increased involvement of the states, I want to hear about it."

Setting a cruel 90-day deadline for delivery of the Task Force report, Gibbons followed his blockbuster announcement with yet another stunner. Later this year, he said, representatives of the states, federal agencies, the White House, and Congress would meet "to review the recommendations of the State-Federal Task Force and to forge these recommendations into new policies and approaches."

And there was more. In cooperation with the states and the philanthropic Carnegie Corporation—which was footing the bills for the meeting and its progeny—a State Science and Technology Institute would be founded "as a clearinghouse of information on technology programs for all 50 states to use."

The starting point for the clearinghouse effort, Gibbons said, was a newly produced 640-page tome, *Partnerships: A Compendium of State and Federal Cooperative Technology Programs*, produced by Battelle, the big Ohio-headquartered industrial consulting firm.

***Partnerships: A Compendium of State and Federal Cooperative Programs*, $39.95, plus $3.50 shipping and applicable sales tax. Order from: Battelle Press, 505 King Ave., Columbus, Ohio 43201; tel. 1-800/451-3543 or 614/424-6393; fax 614/424-3819; e-mail sheldric@bettelle.org**

Edited by Christopher Coburn, a Battelle Vice President who used to run Ohio's S&T-promoting program, the big book briefly describes some 400 research-related programs sponsored alone by states or in collaboration with federal agencies. A forward by the co-chairs of the Federal-State Technology Partnership, former Governors Dick Celeste of Ohio and Dick Thornburgh of Pennsylvania, spells out the partnership goals in a cascade of dizzying prose:

"Ultimately, we envision a fully integrated system, in which American industry has access to the entire range of national research and development programs, through locally defined partnerships with state and federal government. Industry will choose its own investments—something government should not presume to do. But government at both levels will work to make the system accessible to industry, and to offer business and technical services to bring technology to life in the form of economic growth. As the system develops further, we would expect state governments and industry to participate as a matter of course in planning and executing government technology investments that stand to benefit the whole nation. The result will be a vibrant national system of research and development, open and innovative, serving both public and private needs."

The symposium, which lasted just two hours, also heard from one past and one rising luminary in Congressional science affairs, Rep. Constance Morella (R-Md.), Chairman of the House Science Subcommittee on Technology, and Rep. George Brown (D-Calif.), who, for four years up to the Republican sweep, chaired the predecessor of what is now called the House Science Committee.

Morella's district just over the Washington-Maryland boundary, is heavily weighted with federal research establishments, including the National Institutes of Health, the National Institute of Standards and Technology, the Department of Energy, the Food and Drug Administration, major offices of the Department of Health and Human Services, plus a few others. Congresswoman Morella is thus understandably not in the vanguard of federal budget cutters.

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Job Changes: Congressional Staff Posts, and More

Chairman Robert Walker has filled the top subcommittee staff slots on the House Science Committee, announcing the following appointments of subcommittee staff directors on January 23:

Basic Research (chaired by Rep. Steve Schiff, New Mexico), ***Tom Weimer***, a professional engineer, formerly at Sandia National Laboratories and the Interior Department, and a Republican staff director of the predecessor of the Science Committee, the Science, Space, and Technology Committee (SS&T). Energy (chaired by Rep. Dana Rohrabacher, California), ***Harlan Watson***, a physicist, formerly with Interior, the Senate Committee on Governmental Affairs, and the SS&T Committee. Space and Aeronautics (chaired by Rep. James Sensenbrenner Jr., Wisconsin), ***Shana Dale***, an attorney, former counsel to several subcommittees on the SS&T Committee. Technology (chaired by Rep. Constance Morella, Maryland), ***Doug Comer***, an attorney, former Deputy Commissioner of the Patent and Trademark Office and Chief Counsel and Staff Director of the Senate Judiciary Subcommittee on Courts. Serving as staff director of the full Science Committee is ***David Clement***, an attorney, on the staff since 1977, and in past Congresses, counsel and staff director for the SS&T Republican minority.

In the Senate, where the counterpart of the House Science Committee is the Science, Technology, and Space Subcommittee of the Committee on Commerce, Science, and Transportation, ***Tim Kyger*** is the staffer for technology and ***Louis Whitsett*** handles space and science. Senator Conrad Burns of Montana chairs the subcommittee.

Anne Keatley Solomon, a former senior staff member at the National Academy of Sciences and the Carnegie Institution of Washington, has been appointed Deputy Assistant Secretary of State for Science, Technology and Health in the Bureau of Oceans and International Environmental and Scientific Affairs.

At that leading model of institutional dysfunction, the National Institute of Mental Health, ***Michael Brownstein***, has announced that he will step down as Acting Director of the intramural research program, in which post he was supposed to be removing deadwood from the NIMH staff roster [SGR, December 1, 1994: "Bedlam Erupts at National Institute of Mental Health"]. Meanwhile, the search for a new NIMH director continues, following the unexpected death in December of a leading candidate, ***Roland D. Ciaranello***, of Stanford University. On a short list of six, he was one of the top two under consideration by NIH Director Harold Varmus.

Also at NIH, Varmus last week announced the selection of ***Wayne B. Jonas***, Director of the Medical Research Fellowship at Walter Reed Army Institute of Research, to head the NIH Office of Alternative Medicine. The post has been empty since last September, when the founding Director of the office, ***Joseph J. Jacobs***, quit in evident dismay over NIH's coolness toward the alternative medicine program, which was pushed on NIH by Congressional enthusiasts for wacky therapies. Jacobs was sniped at from all sides as he sought to apply mainstream scientific verification methods to alternative claims. Varmus's announcement says that Jonas, an MD, "has training in homeopathy, bioenergy therapy, diet and nutritional therapy, mind/body methods, spiritual healing, electro-acupuncture diagnostics and clinical pastoral education."

Another NIH appointment announced by Varmus: ***Maria C. Freire*** to head the NIH Office of Technology Transfer, which promotes collaboration between industrial firms and NIH, the Food and Drug Administration, and the Centers for Disease Control and Prevention. Freire, a PhD in biophysics, founded and headed the Office of Technology Development at the University of Maryland at Baltimore and Baltimore County.

At the NIH National Institute on Aging, ***Terrie Wetle*** has been appointed Deputy Director. Since 1988, she has been Director of the Braceland Center for Mental Health and Aging at the Institute of Living in Hartford, Conn.

Frank von Hippel has stepped down as Assistant Director for National Security at the White House Office of Science and Technology Policy (OSTP). He will be at the Federation of American Scientists, in Washington, until August, when he returns to Princeton University, where he's Professor of Public and International Affairs. ***Howard Gobstein***, on leave from the Association of American Universities, where's he's Vice President, is working with M.R.C. Greenwood, OSTP Associate Director for Science.

Hilleary Everist has been appointed Deputy Director of the Division of Social, Behavioral and Economic Sciences at the NSF. A psychologist, she formerly was Deputy Director of the Division of Neuroscience and Behavioral Science at the National Institute of Mental Health.

Partnerships

(Continued from Page 5)

Describing her constituency in a brief talk to the federal-state symposium, Morella lamented that federal money is tight, and expressed hope that good things would come from an expansion of federal-state collaboration. She concluded with an inspirational message: "Hold hands and stick together."

Brown wryly remarked that he's "going through a period of readjustment," adding that "there are other names for it." Referring to NIST's Advanced Technology Program, which has drawn ominous notices from Republican budget cutters, Brown said that the big increases projected for ATP in Clinton's preelection budget plan now look doubtful. He suggested that perhaps the states could provide support for expansion of the program, which helps organize and underwrite industrial research consortia.

Brown said that "central government influence is waning," and that federal-state partnerships "are the wave of the future."

In Print

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creased or decreased." Instead, it offers 22 recommendations, including more attention to underserved populations, integration of basic science education for medical and dental students, and, of course, more research on dentistry and dental education. The report was prepared by a committee of the Institute of Medicine, health-policy arm of the Academy, chaired by John P. Howe III, President, University of Texas Health Science Center, San Antonio. Marilyn J. Field was Study Director.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1-800/624-6242; in the Washington, DC, area: 202/334-3313.

From the Office of Research Integrity, Department of Health and Human Services:

ORI Newsletter (quarterly, 8 pp., no charge), reports on misconduct cases, court decisions, policy interpretations, meetings, publications, etc.

Order from: Office of Research Integrity, 5515 Security Lane, Suite 700, Rockville, Md. 20852; tel. 301/443-5300; fax 301/443-5351.

From the General Accounting Office (GAO), no charge:

Technology Transfer: Benefits of Cooperative R&D Agreements (GAO/RCED-95-92; 26 pp.), describes a hand-picked sample of 10 success stories in the decade-old program of federal-industrial partnerships under Cooperative Research and Development Agreements (CRADAs). In several cases, the GAO says, "private companies were manufacturing and selling products that directly resulted from federal research." The government agencies sharing their resources with industry in the sample were the National Cancer Institute, NIST, the Department of Agriculture, and the US Army. With thousands of CRADAs in effect, and few blockbuster results, why look just for winners? The GAO offers a clue in a covering letter to the originator of the study, Democratic Senator Paul Sarbanes, who represents Maryland, homebase of agencies that issued six of the CRADAs. "You asked us to review the role of CRADAs in successfully transferring technology to the private sector," the GAO states, while noting that the case studies "are not necessarily representative of all CRADAs" and that the GAO "did not attempt to assess the cost of these collaborations."

Hospital Costs: Cost Control Efforts at 17 Texas Hospitals (GAO/AIMD-95-21; 51 pp.), based on a study of for-profit, non-profit, and government hospitals in the Dallas, Fort Worth, and Houston metropolitan areas, the GAO reports they're all under financial pressure resulting from the shift to negotiated discounts and fixed prices under managed care. To maintain profitability, the GAO found, the hospitals are trying to "standardize physician practice patterns to eliminate unnecessary procedures" and are organizing joint ventures to acquire and operate costly equipment. The report says that managed care has raised administrative costs, noting that 16 of the hospitals "have added personnel or created entirely new departments to handle managed care administration." One of the hospitals, the GAO found, added 15 new employes "to assist in the collection of managed care revenues."

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

From the National Center for Human Genome Research, National Institutes of Health:

NCHGR Today (quarterly, 4 pp., no charge), a new newsletter, contains brief reports on activities in the Division of Intramural Research of the genome program.

Order from: National Center for Human Genome Research, Office of Communications, Building 38A, Room 617, Bethesda, Md. 20892; tel. 301/402-0911; fax 301/402-4570; E-mail LSF@cu.nih.gov

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From the American Cancer Society, no charge:

Cancer Facts and Figures—1995 (30 pp.), latest statistics on incidence, survival rates, mortality, by types of cancer and geographic location of patients.

Cancer Risk Report: Prevention and Control—1994 (24 pp.), data on tobacco and alcohol consumption, dietary factors believed relevant to cancer, mammography and other screening programs, etc.

Order from: Local chapters of the American Cancer Society; or tel. 1-800/ACS-2345.

Correction

David Goldston is director of the major study on R&D policy now underway at the Council on Competitiveness. His name was garbled in SGR of December 15, 1994.

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Official reports and other publications of special interest to the research community

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From the Science Policy Research Division of the Congressional Research Service, part of the Library of Congress, all at no charge:

DOD Support for University Based Research (94-1001 SPR, 21 pp.), shows that the Pentagon is a relatively small but important contributor to academic R&D. Though providing only $1.5 billion of the $11.6 billion that federal agencies supplied for on-campus research in 1994, DOD plays a major financial role in several disciplines, according to the report, written by Michael E. Davey. Nearly half of all federal support for math and computer sciences in 1993 came from DOD, which also provided 42 percent of federal funds for engineering research. DOD also provided 9.3 percent of federal support for psychology and a similar share for the physical sciences. The report also summarizes controversies over indirect costs and earmarking of DOD research funds.

Alzheimer's Disease: Federal Research Funding and Programs (95-14 SPR, 6 pp.), reviews NIH funding of Alzheimer's research, which, despite abundant publicity, has experienced modest growth in recent years, from $287 million in fiscal 1993 to $309 million this year. The report lists NIH-supported Alzheimer's research centers, with amounts awarded to them over the past few years. C. Stephen Redhead is the author.

The Advanced Technology Program (95-36 SPR, 6 pp.), tracks the meteoric growth of ATP, in the National Institute of Standards and Technology, from $36 million in 1991 to $431 million this year. The program, which subsidizes industrial research, has been targeted for termination by some Republicans to help cover tax cuts promised in the Contract With America. But at this point, ATP remains intact and is inviting new applications. Noting mixed assessments of ATP's value for stimulating industrial R&D, the author of the report, Wendy H. Schacht, states the issue as follows: "Is the approach embodied in ATP the preferable one, or could other mechanisms, such as permanent tax credits for R&D, changes in capital gains treatment, and/or liability and regulatory reform be more effective?"

The Federal Role in Technology Development (95-50 SPR, 6 pp.), summarizes federal statutes designed to promote research with commercial potential, including the National Cooperative Research Act, the Bayh-Dole patent amendments, and the Defense authorization for the Technology Reinvestment Project. This one is also by Schacht.

The Tokamak Physics Experiment: Description and Issues—An Update (94-990 S, 6 pp.) and ***Magnetic Fusion Energy—A Fact Sheet*** (94-1003 S, 2 pp.), reports the current status and background of magnetic fusion research, on which $7.4 billion has been spent since 1951 en route to the goal of a 2025 starting date for construction of a demonstration reactor. With $372 million in this year's budget, doubts about this venture are flourishing on Capitol Hill. The reports are by Richard E. Rowberg.

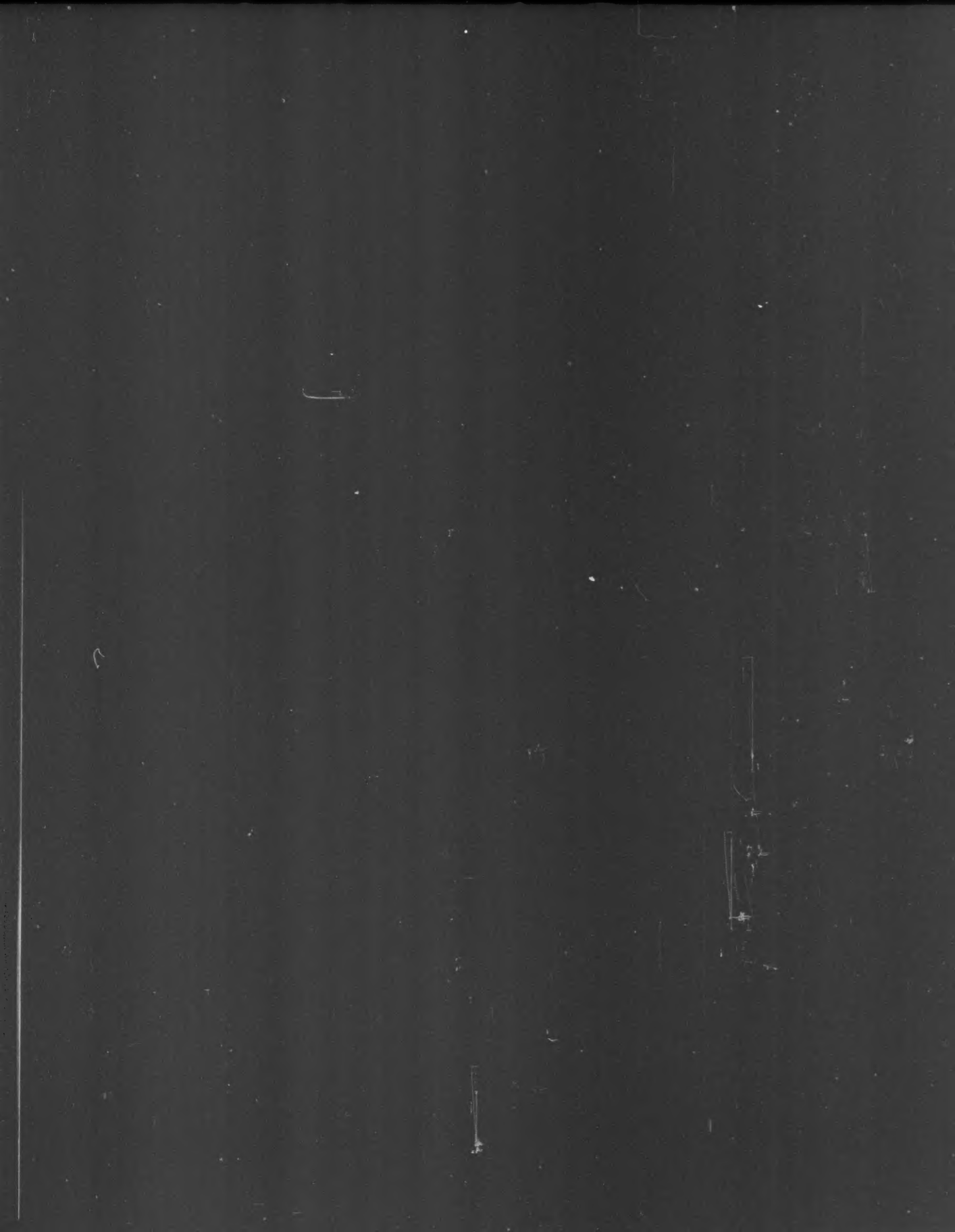
Order these reports through a House or Senate member. Senate switchboard, 202/224-3121; House, 202/225-3121. Cite the Congressional Research Service as the source, with report title and number.

From the National Academy of Sciences (NAS):

On Being a Scientist: Responsible Conduct in Research (second edition, 27 pp., $5, plus $4.50 for shipping; reduced rates per copy for bulk orders), a reworked version of a 1989 NAS pamphlet in which young scientists were advised to look mainly to their elders for ethical guidance in the conduct of research. The advice evoked hearty laughter in the youthful ranks of science, but the Academy, ever so pleased with itself, plastered the scientific community with some 200,000 gratis copies of the publication. The re-warmed serving of pablum was produced by a committee chaired by Nobel laureate Phillip A. Sharp, head of biology at MIT's Center for Cancer Research, and 70,000 copies are on the way to graduate students, the Academy says. A press release announcing the new edition notes that it contains "hypothetical scenarios for 'collective deliberation.' " It also quotes Sharp as saying, "Young scientists still learn about ethics in the traditional way—from experienced scientists in the research lab and in the classroom."

The tenor of the Academy's pamphlet contrasts sharply with a recent comment on authorship by Kenneth J. Ryan, Chairman of the Department of Health and Human Services Commission on Research Integrity. Ryan remarked at a Commission hearing that many young scientists complain about "having the professor take away their research" [SGR, November 15, 1994].

Coal Energy for the Future (320 pp., $39.95, plus $4.50 for shipping), criticizes the Department of Energy for looking only as far as the year 2010 in planning research for cleaner and more efficient use of coal, and urges DOE to extend its horizon to 2040. In the current political climate, however, DOE's Clean Coal Technology program will do well to make it to next year. The report was prepared by the Academy's Committee on the Strategic Assessment of the US Department of Energy's Coal Program, chaired by John P. Longwell, MIT Professor emeritus of Chemical Engineering. Jill Wilson, of the NAS staff, was Study Director.

Dental Education at the Crossroads: Challenges and Change (345 pp., $49.95, plus $4 for shipping), says dentistry is in ferment about its future, following the closing of six schools in the past decade, and declining enrollments and other signs of difficulties in some of the surviving 54. Does this mean that the profession is inevitably and sensibly declining from the stunning successes of fluoridation and other preventive measures? The report gingerly dances around this question, saying it found no evidence "to warrant recommendations that dental school enrollments be in-

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